SCRRBA

Southern California Repeater and
Remote Base Association
P.O. Box 5967
Pasadena, California 91117

In the Matter Of:	)	
	)	
Spectrum reallocation in the 2.30	)	**ET Docket No. 94-32**
through 2.45 GHz Frequency bands	)	
Of spectrum transferred from	)	
Federal Government Use	)	

RE: Second Notice of Proposed Rule Making FCC 95-47

COMMENTS OF THE SOUTHERN CALIFORNIA REPEATER AND REMOTE BASE ASSOCIATION IN RESPONSE TO THE FIRST REPORT AND ORDER AND SECOND NOTICE OF PROPOSED RULE MAKING

March 19, 1995

1: The Southern California Repeater and Remote Base Association (SCRRBA) is a voluntary association of owners and operators of Amateur Radio Service fixed and mobile relay stations operating primarily on the UHF and Microwave Frequency amateur bands. SCRRBA has provided frequency coordination for these activities since 1970. SCRRBA has actively participated in numerous Federal Communications Commission rule making proceedings pertinent to our activities. SCRRBA has filed timely comments on the NTIA Preliminary Report (on reallocation of Government spectrum to non-government use). SCRRBA has filed timely comments and timely reply comments on the Notice of Inquiry FCC 94-32. SCRRBA has filed timely comments and timely reply comments on the Notice of Proposed Rule Making FCC 94-272 in this same matter. We hereby respectfully submit our comments on this Second Notice of Proposed Rulemaking FCC 95-47.

2: We formally note the substantial effort put forth by the Commission and its personnel in reviewing the rather large number of comments in these proceedings to date. That these comments have been carefully considered continues to show in the writings of the Commission at each step of these proceedings. These results show that much thought has been put into arriving at a balanced decision producing the best overall benefit to the public. Inclusion of the Amateur service in this decision shows us that the Commission continues to properly recognize the Amateur service as the benefit to the public that it is.

3: The Commission decision to allow unlicensed PCS operations at 2390-2400 MHz and to continue Part 15 operations in 2400-2450 (2483.5) MHz provides excellent commercial "public use" of this spectrum. Elevating the Amateur Service to Primary in this spectrum allows the Amateur service to continue and expand meaningful use of this spectrum. We applaud this decision.

4: The instant docket asks several questions generally relating to compatibility between the Amateur service and both the proposed and existing unlicensed PCS and Part 15 uses.[1] We state that, in general, there is a high probability of success in the proposed spectrum sharing plan.[2] Within the discussions below we will outline the areas of our concerns with the hope that these data will lead to enhanced shared use of these band segments.

5: We are opposed to combining the 2390-2400 MHz and 2400-2483.5 MHz segments into one large Part 15 allocation.[3] One of the keys to success for spectrum sharing with the amateur service is the amateurs' ability to choose operating frequencies within a band. This decision may take the form of simply listening for the "quietest" frequency before beginning operation, or (as is more often the case today) operating frequencies are chosen in conformance with a local or regional "band plan." This plan is usually generated by bringing together representatives of the activities within a band and merging their expertise and data on the band. This data includes information on amateur and non-amateur activities and their interference potential. Since the amateur community has no desire to either cause or be subjected to interference, these data are merged into a "frequency use plan" that possesses the best likelihood success. One of the key elements in this approach is the use of "guard bands" or "band edges." The point of lowest energy from a Part 15 transmitter within its assigned band is most often at the band edges. The Part 15 receiver is most likely to be able to reject an "in band" unwanted signal when that signal is nearest the edge of the band. This data is combined with the power, bandwidth and interference susceptibility of the type of amateur operation to arrive at a meaningful "band plan" It is no accident that the Amateur Satellite operations in the 2400 MHz segment are presently at 2400-2402 MHz.[4] We have noted repeatedly in our comments that there are some types of amateur operations which will not easily share spectrum with Part 15 type devices.[5] We have explained that Amateur operators will naturally choose to place these types of operations in portions of the spectrum where

[1] Notice at 55, 57, 58.
[2] Our sole source of data on this sharing plan is the instant docket. We have yet to receive copies (requested of the ARRL) of the Ex-Parte filings (and a meeting) by the ARRL wherein, we are told, there were discussions with Apple Computer and the FCC about sharing "parameters" for 2390-2400 MHz.
[3] Notice at 55
[4] See AMSAT comments on the NTIA plan, the NOI, and the First NPRM
[5] see SCRRBA comments and reply comments to: NTIA, NOI ET 94-32; First NPRM in ET 94-32

interference is either absent or minimal. Band edge segments are one of areas where these operations have the highest probability of success.[6] Elimination of the band edges for Part 15 and PCS at 2400 MHz will substantially reduce the number of frequencies usable by the amateur service where there is reduced interference.[7] Elimination of this band edge will, for the above reasons, also significantly increase the probability of interference to and from stations operating in the Amateur Satellite service at 2400-2410 MHz.[8]

6: On the presumption that the "band edges" discussed above are maintained as presently proposed, we do not believe that, at this time or in the immediate future, any additional regulation of either the Part 15 service or the Amateur service is either desirable or necessary in the 2400-2450 MHz segment.[9]

7: We are opposed to increasing the status of Part 15 (or unlicensed PCS) operations to Co-Primary. The Part 15 users have effectively already received an increase in status by the elimination of Government service use of the band. Placing the Part 15 users on an equal footing with the Amateur users will effectively eliminate the amateur operations in the band.[10] This would place a licensed service on an equal basis with an unlicensed service; an untenable situation for the licensed service.

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[6] See discussion of 2300-2310 MHz below at 10,11

[7] It should be noted that there is effectively no "band edge" at 2450 MHz as the Part 15 band extends above this frequency to 2483.5 MHz, and ISM use is MAXimum at 2450 MHz.

[8] The recent decisions in the 902-928MHz band allocating the 927-928MHz area for "control transmitters" for the location and monitoring systems has virtually eliminated the usability of this entire band for amateur relay or point to point operations. "AVM" activity in our region by Pacific Teletrac has already eliminated use much of the band. We have a number of systems coordinated on the "band edge" pairing of 902-903 MHz paired with 927-928 MHz. This is no longer viable.

[9] Notice at 58

[10] See SCRRBA NOI and first NPRM comments

8: The Amateur Service has an exemplary record of cooperation particularly in interference situations. We are certain that any interference by Amateur operations in 2402-2418 MHz segment to NRC space research operations[11] can be eliminated by case by case coordination with affected NRC operations. No regulatory action is necessary or desirable. Elimination of amateur aeronautical use of this segment would substantially curtail certain amateur television operations presently being conducted.[12]

9: In each and every one of our comments on these proceedings we (and most all other amateur commenters) have rigorously included the 2300-2310 MHz segment as an integral part of the 2300-2450 MHz amateur band. We clearly understand that the Commission has chosen not to review this segment until the NTIA finally releases this segment from Government allocation. We maintain that any use plan for the 2300-2450 MHz band must include this segment. The evaluation that the proposed new "unlicensed PCS" operations in 2390-2400 MHz will ".. avoid excessive disruption of amateur use of existing Federal Government frequencies" is, unfortunately, spurious unless the Amateur service retains full access[13] to the 2300-2310 MHz segment. The following discussions are intended to identify this disruption and identify potential methods to minimize this disruption. We WANT the proposed PCS allocation to be successful. We want to be able to continue to demonstrate that the Amateur service can share spectrum intelligently -- with the proper sharing partner.

10: The present structure of 2300-2450 MHz amateur activities in the southwestern U.S.[14] has placed most of the "weak signal" and much of the long haul point to point activities in the 2300-2310 MHz segment where there is no Part 15 or ISM activity. The 2300-2310 MHz segment is where amateur activities first occurred in this band, and this segment continues to hold a very important portion of the overall amateur activity in the band[15]. The 2300-2310 MHz segment is nearly free of interference. The 2390-2400 MHz segment is not as quiet due to

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[11] Notice at 59

[12] Typically helicopter cameras being transmitted to the ground. See comments of ATN and others.

[13] "Full access" means, at minimum, co-primary status with a service similar to ours -- government or non commercial light usage.

[14] See SCRRBA "Band Plan" attached as appendix 1

[15] See comments of the San Bernardino Microwave Society and the Western States VHF-Microwave Society among others for examples and history

"spill-over" from ISM and Part 15, but it has been relatively good to date. The addition of PCS operations in this segment will increase the noise floor substantially, and adds a user which could be interfered with by amateur operations. Almost all of the point to point amateur operations are "paired" operations. This pairing is most often between the 2300-2310 MHz segment and the 2390-2400 MHz segment. The addition of the unlicensed PCS operations in 2390-2400 MHz poses a material potential for disruption of these services. The potential of elimination of all or part of the Amateur Service access to 2300-2310 MHz by upcoming Commission action adds to the potential disruption by eliminating most of the pairable spectrum, and forcing displaced operations into 2390-2400 MHz.

11: The discussion above on "band edges" explains the methods normally used by the Amateur community to select operating frequencies in these bands. Those comments are applicable here as well. The potential for mutual interference plays a major role in this process. If the Amateur Service has sufficient spectrum that is "quiet" and where there is no other user to be disrupted, the Amateur operations that can cause or suffer interference will operate there successfully.[16] There are many other types of Amateur operations which are to varying degrees less likely to interfere or be interfered with (by PCS operations). These operations can be placed in the segments where there are other users.

[16] Weak signal, Moonbounce, and Tropo or Meteor scatter operations are some examples

12: We expect that, for example, an amateur point to point system operating between a residential area and a mountaintop would place the frequency pairing so as to minimize the impact of PCS operations at or near the residential end of the path. If the signal being received from the mountaintop is of sufficient strength, it may be practical to receive (at the residential end) in the 2390-2400 MHz band while transmitting in the 2300-2310 MHz segment minimizing the impact on PCS operations. The mountaintop receiver which is on a directional antenna which can "see" a large area around the residential transmitter will not have to sort out the desired signal from in-between many PCS signals. These same comments apply where one end of the path is on a large office type building where PCS activities might be quite extensive. Longer paths (usually between mountaintops) can be placed at the "band edge" of the segments, if necessary to minimize the unwanted signals from and to PCS operations.[17]

13: We request that the segment from 2390 to 2391 MHz be restricted from PCS operation until (and unless) the 2300-2310 MHz segment is finally decided in favor of the Amateur service. This segment would allow the continued operation of a portion of the interference generating and interference susceptible amateur activities that are presently in the 2300-2310 MHz segment. Only a part of these activities could be sustained in this 1 MHz segment, but these activities would otherwise be totally lost if the 2300-2310 MHz segment is lost or seriously diluted. Should the Commission codify this request, we would be satisfied to see this limitation removed from the regulations when the Amateur Service obtains a clean allocation at 2300-2310 MHz. We have no desire to impede the development of the new PCS operations.

[17] More examples and discussion can be found in our comments to the NTIA; on the NOI; and on the first NPRM

14: We have commented extensively on the viability of amateur sharing with Part 15 operations.[18] We explain the most likely cases of interference we can visualize. We hope that these will be rare occurrences, but, reality intervenes to remind us that the Part 15 type activities are increasing very rapidly in type and "dispersion." We expect the usability of the 2390-2400 MHz and 2400-2450 MHz segments to steadily decrease with time. We can hope that the ISM, Part 15 and PCS equipment manufacturers will steadily improve their products so as to minimize their interference potential and susceptibility. The Amateur community is willing to put up with the inevitable, but we MUST count on the Commission to protect our only clean spectrum in the 2 GHz region; 2300-2310 MHz. If this segment is either lost or diluted, the much of the usability of the entire 2300-2450 MHz set of segments is lost.

15: We do not believe any other additional regulation of either the new Unlicensed PCS operations or Amateur Service operations in the 2390-2400 MHz is either desirable or necessary to ensure beneficial development of these band segments.

16: These discussions are intended to make positive suggestions as to how the Amateur service can be protected while allowing a viable and healthy PCS operation to co-exist. The Amateur community has only the Commission to protect us from the damage unrestrained growth can create. We thank you again for these excellent steps toward the final 2300-2450 MHz spectrum usage plan.

Respectfully submitted,

For the SCRRBA Board and Technical Committee

M. Robin Critchell

ATTACHED: APPENDIX I – SCRRBA BAND PLANS

[18] SCRRBA NOI comments at 16

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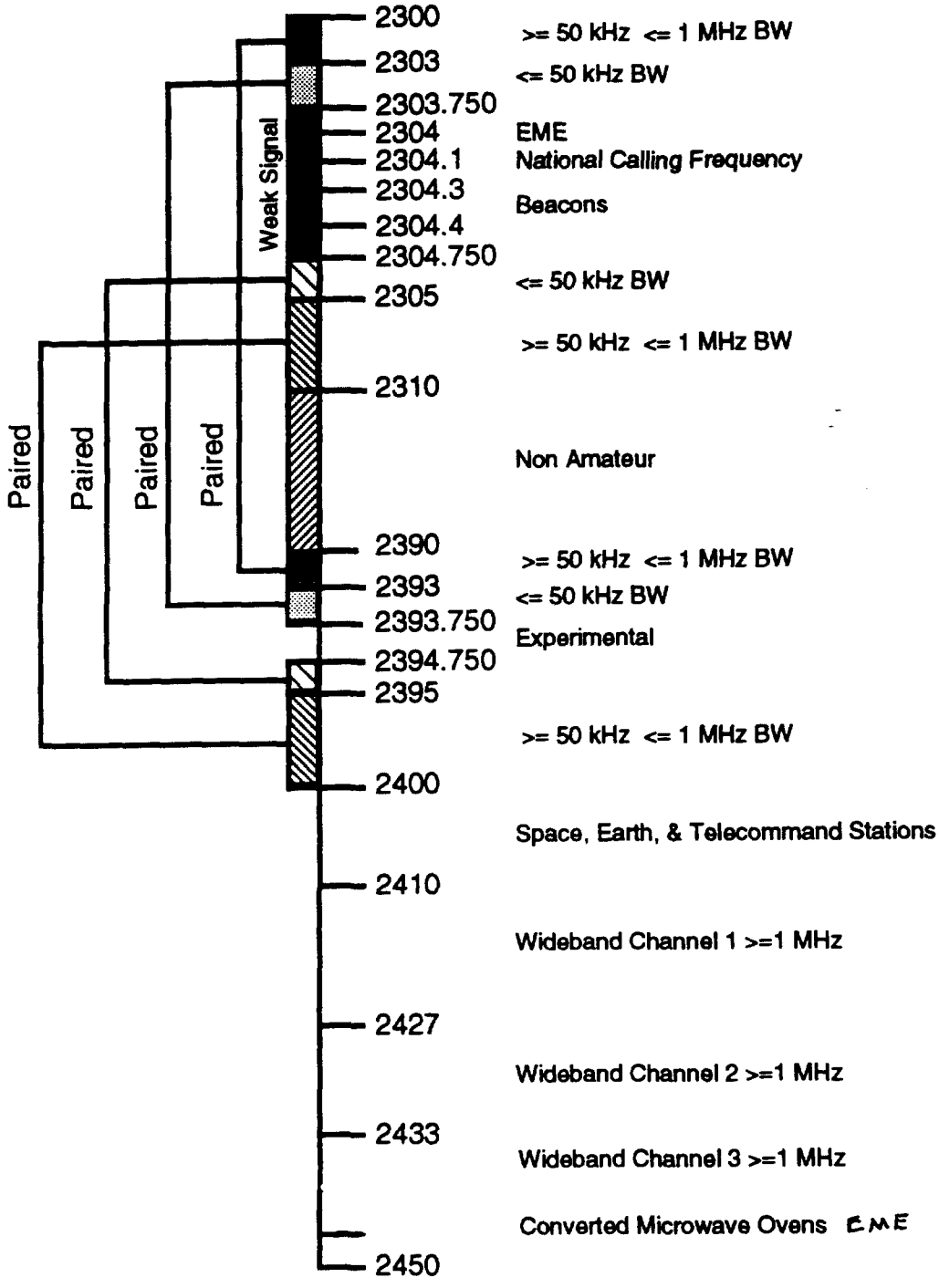

2300-2450 MHz Band Plan
Adopted 9-26-92
SCRRBA

SCRRBA

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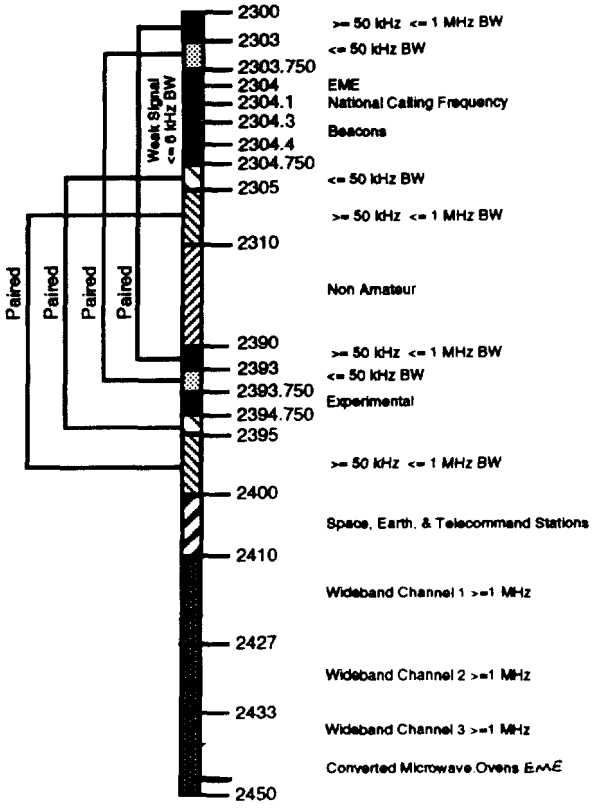
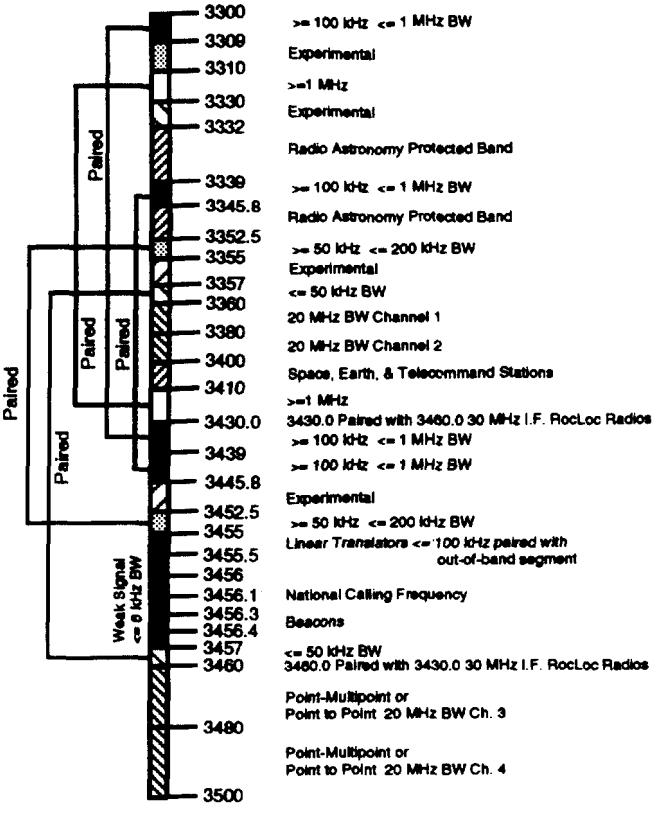
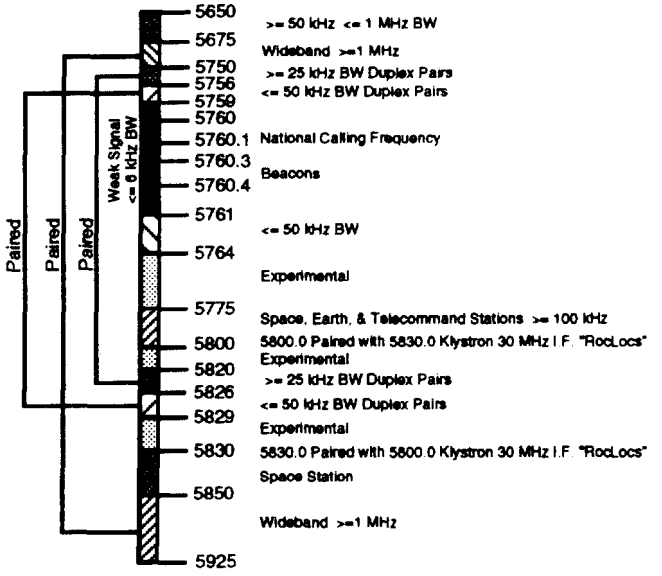


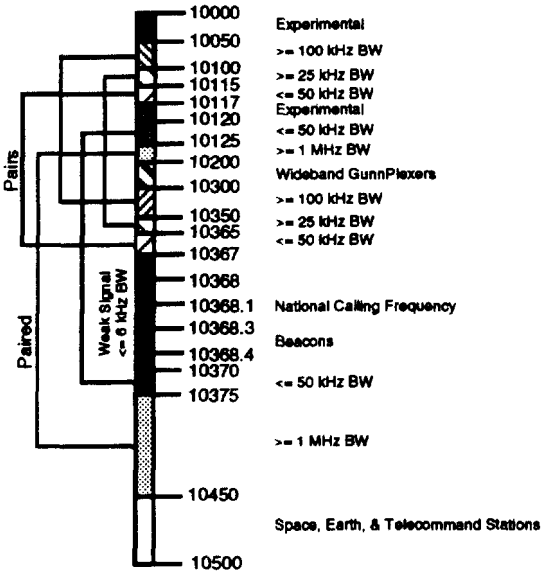
2304 Band Plan



3456 Band Plan



5760 Band Plan



10368 Band Plan

SCRRBA Microwave Band Plans
Adopted 09-26-1992

BW=Occupied Bandwidth